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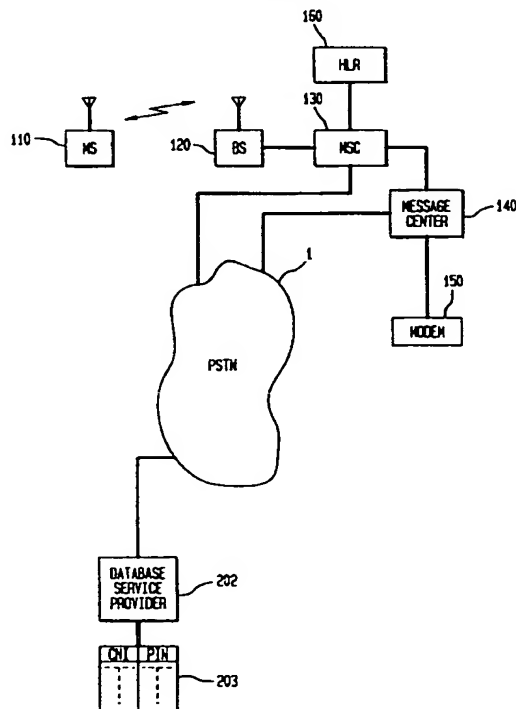
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(54) Method of wireless retrieval of information

(57) A mobile station subscriber can access data from an informational database and have it forwarded to a desired destination. A database associated with the informational database maintains subscriber profiles. When the informational database receives a data request, it uses a mobile station identifier to acquire subscriber profile information. Using that profile information, the requested data is forwarded to a destination designated in the profile in a SMS format.

FIG. 2



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Description

BACKGROUND OF THE INVENTION

The present invention is directed to a method for wireless retrieval of information. More particularly, the invention is directed to a method of providing data from an information database in response to a request from a mobile station on a wireless network.

It is known in the prior art that an information service provider can establish a database which can be accessed by subscribers to obtain particular desired information. Such information might include news, weather, traffic, etc. One configuration for providing such information to a subscriber is illustrated in FIG. 1A. In that configuration a subscriber computer 100 is connected via modem 101 to the public switched telephone network (PSTN) 1 and through that network to a database service provider 102. A subscriber at computer 100 can generate queries or requests that are transmitted to the database service provider which then provides a response back to the subscriber.

While this configuration can be helpful to a subscriber who has a computer and a connection to the PSTN, access to these informational databases or information service providers is otherwise still somewhat limited.

In today's world the use of wireless communications continues to expand at a rapid pace. More and more people have cellular phones which provide them with mobile communication in an ever expanding wireless environment. However, at present there is no configuration in the wireless environment that facilitates the access of a database of an information service provider via a mobile station.

It is known that with the enhanced functionality available to mobile stations, such as prescribed by a protocol referred to as IS-136, message packets can be sent to a wireless communication devices operating within the protocol. In particular, this type of messaging is referred to as a Short Messaging Service (SMS).

FIG. 1B illustrates a known wireless arrangement for providing short messages in accordance with the IS-136 protocol. In that arrangement a mobile station 110 is in wireless communication with a base station 120. The base station is coupled to a mobile switching center (MSC) 130. A message center (MC) 140 is coupled to the MSC 130. The message center stores messages for mobile units and may use a personal identification number (PIN) that is associated with a given subscriber to correlate messages and subscribers. The message center then forwards the messages to the designated mobile station via MSC 130 and base station 120 in a format known as the Short Message Services (SMS) Format. This format is well known in the art and is described in the IS-136 protocol.

To date, no one has explored how implementation of the Short Messaging Service could enhance the abil-

ity of a subscriber to retrieve information.

SUMMARY OF THE INVENTION

The present invention provides a system and method for facilitating access to informational databases from a mobile station. In one embodiment, a subscriber uses a mobile station to place a call via the wireless network and a PSTN to an information service provider. An identification of the mobile station, such as a calling number ID is also forwarded to the information service provider. That provider can then use the calling number ID to retrieve a user personal identification number (PIN) or user identification number. The subscriber then, via activation of keys on the keypad of the mobile station, makes selections of the particular pieces of information which are desired. Subsequently, the database information service provider constructs a message containing the desired data and the appropriate PIN or user identification number and forwards that to a message center. The message center then forwards the data from the information service provider in accordance with the Short Message Service format.

As a consequence of this arrangement, a mobile station has the flexibility to request data from a database service provider and have the data sent directly to the mobile station using a messaging technique which is now available.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A illustrates a known configuration for accessing information from a database service provider.

FIG. 1B illustrates a known configuration for providing short message service to mobile stations.

FIG. 2 illustrates an embodiment of the present invention.

DETAILED DESCRIPTION

In accordance with the present invention, the known configuration for providing SMS formatted data to a mobile station is employed to enhance a mobile station's capability of retrieving data from an informational database. An embodiment of the present invention is illustrated in FIG. 2.

Elements which are identical in the drawing figures bear identical reference numerals. The present embodiment employs the same mobile station, base station, MSC and message center as provided in the known arrangement of FIG 1B. However, in the present invention, the mobile station communicates via base station 120, MSC 130 and PSTN 1 with the information or database service provider 202. In this communication the mobile station can place a request for a particular type of data, for example, news information, sports, weather, traffic or any other data which may be of interest to the

subscriber at the mobile station. As described above, the request can be processed in a known fashion, that is the database service provider may provide the subscriber with voice prompts or menu options for selecting desired data and the subscriber at the mobile station may make selections using either voice responses or responses on the keypad of the mobile station.

In addition to the request for information, the database service provider also receives an identification of the mobile station, namely the calling number identification (CNI). The CNI can be forwarded from a database that associates such information with respective mobile stations. The database service provider then uses the CNI to access information to identify where the requested data should be transmitted. In particular, the service provider can access a table such as that shown in element 203 which constitutes a subscriber profile and correlates a subscriber's CNI with a personal identification number (PIN) which identifies the subscriber and as a consequence provides access to the subscriber's message center which should receive the requested data. The service provider then constructs a message to be transmitted to the message center associated with the subscriber. This message can be constructed either during the course of a call with the mobile station or at some time after the call is completed. The message includes the data requested as well as the PIN. Alternatively, the MIN (mobile identification number) may provide sufficient information to identify the subscriber. In such a case the message would include the data and the MIN. The database service provider then outputs the data via the PSTN 1 to the designated message center 140. The message center stores the message, that is the requested data, in memory associated with the mobile station identified by the PIN or MIN. The messages would be stored in a format that corresponds to the SMS format described in the IS-136 protocol. The message center can then transfer the message packet(s) to the designated mobile station in accordance with known short message service techniques.

In the embodiment described, the information is sent directly to the mobile station which requested it. However, this need not always be the case. In fact, the information is sent to the destination defined by the subscriber profile associated with the CNI in table 203. Therefore, it is possible that a given subscriber could have a customer profile that designates its own mobile station as the intended receiver of the information as described above. Alternatively, the CNI could be correlated with a PIN that designates that the information should ultimately be faxed to the end user at some designated location or it could be stored for later downloading by the end user.

In still a further modification to the disclosed embodiment, it is possible that the Internet could be used as the basis of the information. In that configuration, a database service provider could be considered

an information server that has access to the Internet and obtains information from the Internet as requested by the subscriber. Then the information server would create the appropriate message packages and forward those to the message center based on the PIN associated with the calling party identification number or CNI. In this circumstance the information server might contain: a database of subscriber CNIs and PINs or MINs; dial up software to connect to the message center; software for connection to the Internet to download requested information such as news, weather, sports, traffic, etc.; software to format the information into the appropriate-sized messages to satisfy the protocol; and the ability to detect the CNI.

Other information which may be stored in the user profile can relate to the name of the user, a wire-line phone number, a CNI, an e-mail address, a fax number, etc. and any of this user profile information may be used to direct the flow of data from the information server to the subscriber.

In yet another embodiment of the present invention, the subscriber does not provide a request to a third party, but instead actually sends a request for information to the message center. In this circumstance, the message center acts as an "internal" information service provider. This may be particularly beneficial to a subscriber when circumstances arise where there may be long queues for sending messages at the message center. In this circumstance, the message center would receive a call from the mobile station, it would correlate the CNI with the PIN or MIN and receive a request for transmission of any messages which are pending. The message center would then be activated to respond to these active requests so as to provide the stored messages to the mobile station.

Thus, in accordance with the present invention, a mobile station can achieve access to any one of a variety of information services providers so long as those service providers can correlate a calling number identification of the mobile station with a PIN user identification for a message center to which the mobile station may be coupled and so long as the service provider supports SMS messaging.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. A method of providing data from an informational database, comprising the steps of:

receiving a call from a mobile station on a wireless network;

receiving an identifier of the mobile station;
 using said identifier to access a subscriber profile;
 receiving a request for data during said call;
 and
 transmitting, to a destination determined by said subscriber profile, SMS formatted data corresponding to said requested data.

2. The method of claim 1 wherein said step of transmitting includes the substeps of:

appending an identification number from said subscriber profile to the requested data;
 transmitting the requested data and identification number to a message center; and
 forwarding SMS formatted data from the message center to said destination.

3. The method of claim 1 wherein said destination is said mobile station.

4. A method for providing data from an informational database, comprising the steps of:

receiving a request for data, said request originating from a mobile station;
 receiving an identifier of the mobile station;
 selecting a destination for data transfer based on the received identifier;
 transmitting SMS formatted data corresponding to the requested data to the selected destination.

5. The method of claim 4 wherein said selected destination is the mobile station.

6. The method of claim 4 wherein said selected destination is another mobile station.

7. The method of claim 4 wherein said step of receiving a request comprises the substeps of:

receiving a call from the mobile station;
 presenting data selection options to the mobile station; and
 receiving a selection in response to the presentation of said options.

8. A method of providing data in response to a request from a mobile station comprising the steps of:

in a first communication, receiving a mobile station identifier;
 accessing a subscriber profile using said mobile station identifier;
 generating a message containing requested data;

transmitting, in a second communication, said message to a destination determined by said subscriber profile.

9. The method of claim 8 wherein said message comprises SMS formatted data.

10. The method of claim 8 wherein said destination is said mobile station.

11. The method of claim 8 wherein the step of transmitting includes the substeps of:

transmitting the generated message to a message center; and
 forwarding the requested data from the message center to said destination.

12. The method of claim 11 wherein in the substep of forwarding, the requested data is SMS formatted.

FIG. 1A
(PRIOR ART)

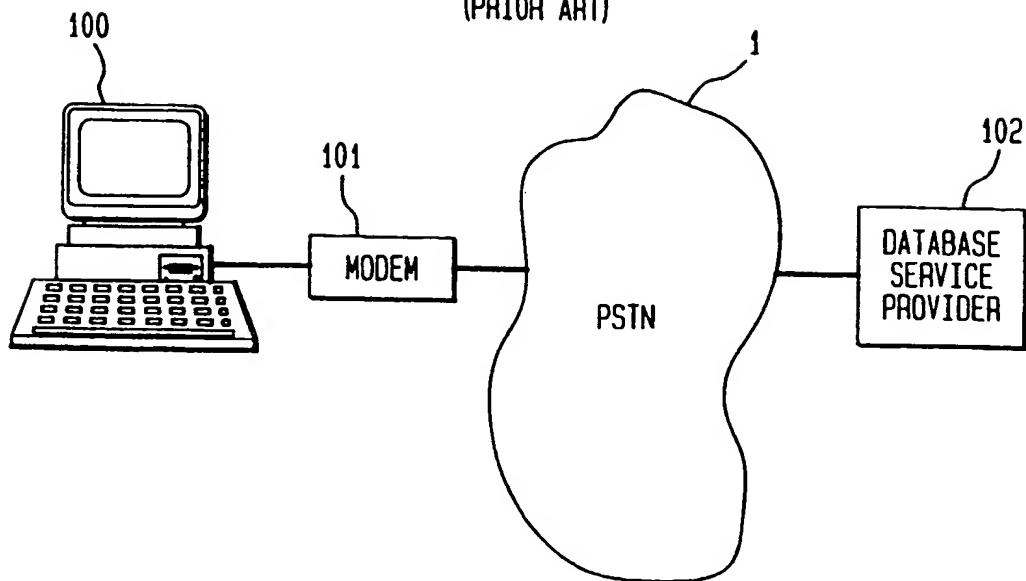


FIG. 1B
(PRIOR ART)

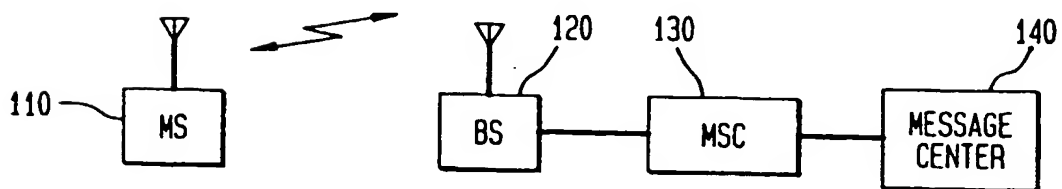
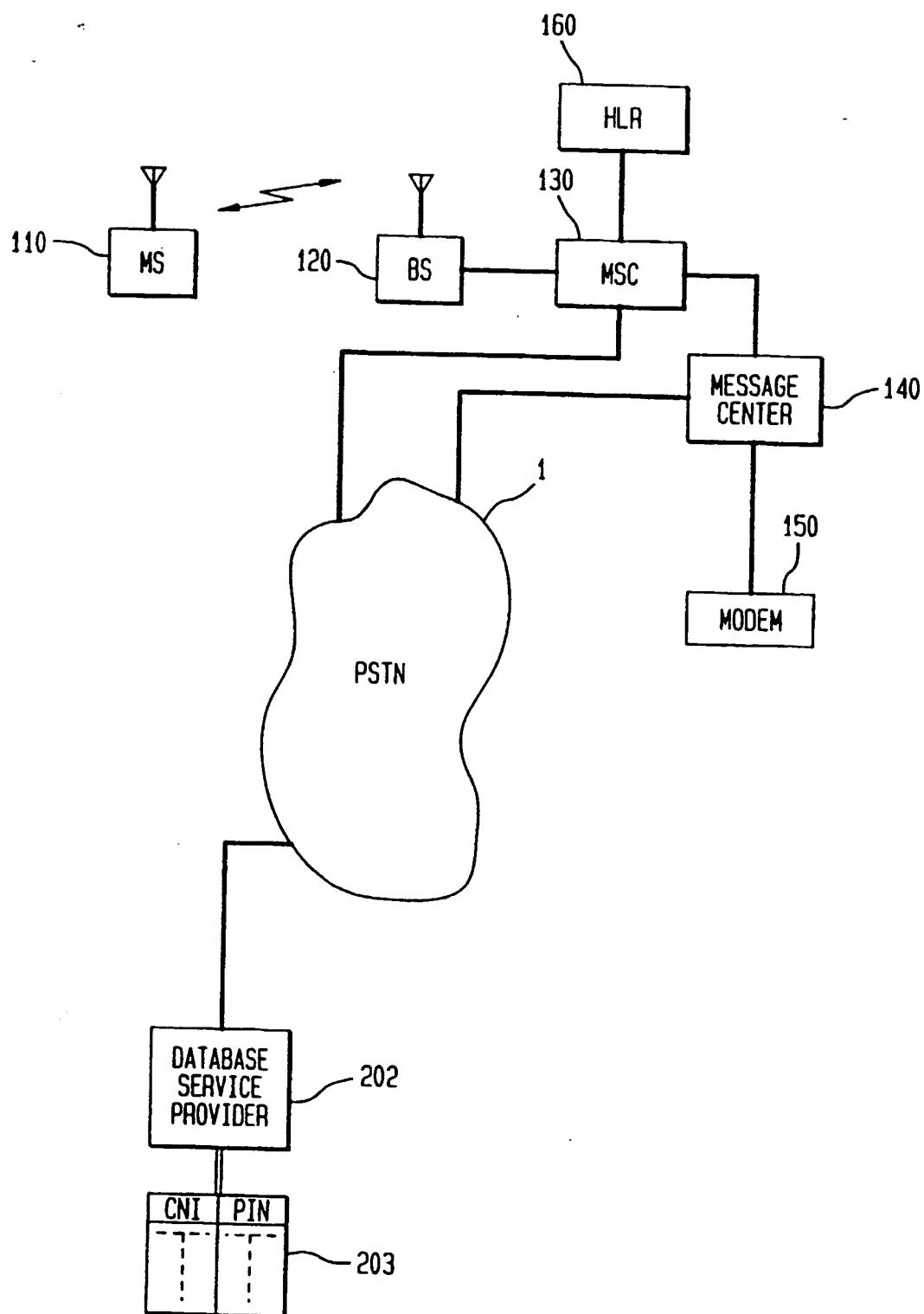


FIG. 2



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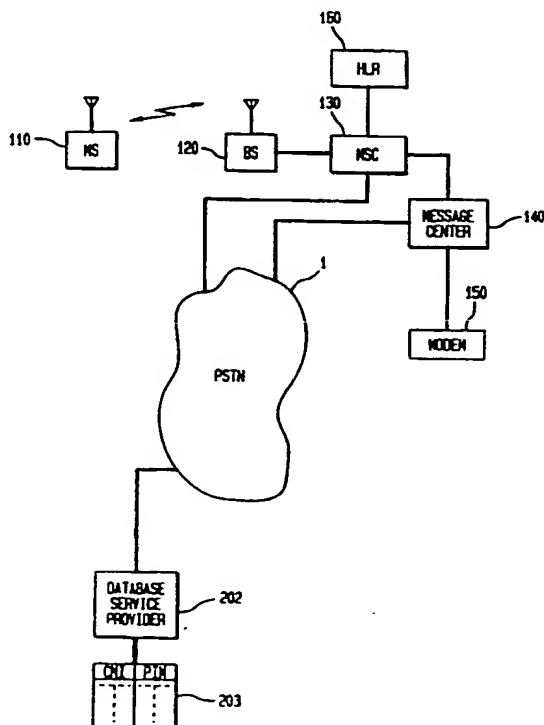
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FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 97 12 1958

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 5 577 103 A (FOTI GEORGE) 19 November 1996 * column 2, line 53 - line 67 * * column 3, line 19 - line 21 * * column 3, line 32 - line 44 * * column 4, line 20 - line 34 *	1,3,8-10	H04Q7/22
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X,P	WO 97 41654 A (MCLORINAN ANDREW GEORGE ;TSOUKAS GEORGE JAMES (AU); ERICSSON TELEF) 6 November 1997 * abstract * * page 3, line 26 - page 4, line 5 *	1-12	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H04Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29 June 1999	Examiner Dionisi, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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